

REMARKS

The Examiner is thanked for the thorough examination of the application. The specification has been amended to correct minor errors. Attached to this paper please find Publication (1)¹ and Publication (2)². No new matter is believed to be added to the application by this Amendment.

Status Of The Claims

Claims 1-18 are pending in the application. The Examiner has withdrawn claims 10 and 11 from consideration. Claims 4 and 7 have been amended to improve their language without reducing their scope. Claim 13 corresponds to claim 1 and finds additional support at page 21, lines 24-25 of the substitute specification. Claims 14-18 find support in the substitute specification at page 21, line 25 to page 22, line 24.

Disclosure/Information Disclosure Statement(s)

At page 2 of the Office Action, the Examiner asserts that the listing of references in the specification is not a proper Information Disclosure Statement. At pages 3 and 4 of the substitute specification there is a discussion of Japanese Applications 08-183866 and 08-34929. These references were submitted in the Information Disclosure Statement filed July 22, 2003 and the Examiner has made the initialed PTO - 1449 form of record in the Office Action of January 27, 2006.

¹ 12th Polymer Material Forum Summary (November 10, 2003) and English Translation.

² Transparency Used at the 12th Polymer Material Forum Summary and English Translation.

Also, the Examiner asserts that references cited in the Search Report filed November 25, 2003 have been considered but they will not be listed on the Issued Patent because they were not provided in a separate list. However, the references in the European Search Report were submitted in the Information Disclosure Statement filed November 25, 2003, and the Examiner has made the initialed PTO-1449 form of record in the Office Action of January 27, 2006.

The only remaining issue concerning the potential submission of prior art in an Information Disclosure Statement is that of JP 11-282228, which was cited on the second page of the listing of documents in the European Search Report. However, this reference was given the category "A", which has a relevancy of "technological background". As a result, this reference is thus considered to be cumulative of the background art, and it is therefore not necessary to file an additional Information Disclosure Statement for consideration by the Examiner.

Rejection Under 35 U.S.C. §112

Claims 4 and 7 have been rejected under 35 U.S.C. §112 second paragraph as being indefinite. Applicants traverse.

At page 3 of the Office Action the Examiner asserts that improper Markush language is being used. However, claims 4 and 7 have been amended to recite proper Markush language. Claims 4 and 7 are therefore clear, definite and have full antecedent basis.

This rejection is overcome and withdrawal thereof is respectfully requested.

Rejections under 35 U.S.C. §§102(b)/103(a)

Claims 1, 2, 4-9 and 12 have been rejected under 35 U.S.C. §102(b) as being anticipated or in the alternative under 35 U.S.C. §103(a) as being obvious over either Hilti (U.S. Patent 5,965,206) or JP '866 (JP08-183866). The Examiner finds claim 3, which depends upon claim 1, to be allowable. Applicants traverse the aforesaid rejections.

The present invention pertains to a conductive elastomer composition having excellent hardness and compression set properties. Of the many embodiments of the invention, claim 1 typically sets forth a conductive elastomer composition formed from a novel thermoplastic elastomer composition (A) containing a compound (A1) composed of a thermoplastic resin and/or a thermoplastic elastomer and a compound (A2), composed of a crosslinkable rubber and/or a crosslinkable thermoplastic elastomer, dispersed in the compound (A1) by dynamically crosslinking compound (A2); and an ionic-conductive agent (B) containing a metal salt and a polyether-containing block copolymer resin, mixed with and dispersed in the thermoplastic elastomer composition (A). Mixing a crosslinking agent with the compound (A2) helps promote the dynamic crosslinking (see claims 9 and 13).

Hilti pertains to an anti-static composition. At page 5 of the Office Action the Examiner essentially quotes the abstract of Hilti to describe the anti-static mixture. The Examiner additionally points to column 4, lines 14-20 of Hilti, which describes styrene/polymer mixtures. The Examiner turns to column 6, lines 27-30 of Hilti, which describes fibrous organic polymer in the form of granules or powder. The Examiner turns to column 7, lines 1-5 and lines 55-60 of Hilti, for a discussion of block copolymer/inorganic salts. At page 6 lines 1-5 of the Office

Action the Examiner asserts that the disclosure of Hilti inherently meets the “dynamically crosslinking” limitation of claim 1 of the present invention.

JP '866 pertains to a thermoplastic elastomer sheet. The disadvantages of JP '866 are discussed at pages 3 and 4 of the substitute specification. At page 6 lines 11-15 of the Office Action the Examiner asserts that JP '866 meets the “dynamically crosslinking” limitation of claim 1 to the present invention.

That is, the Examiner asserts that both Hilti and JP '866 inherently meet the “dynamically crosslinking” limitation (page 6, lines 4 and 14 of the Office Action).

However, accidental results not intended and not appreciated do not constitute anticipation. Eibel Processing Co. v. Minnesota and Ontario Paper Co., 261 US 45 (1923); Mycogen Plant Science, Inc. v. Monsanto Co., 243 F.3d 1316, 1336, 5 USPQ2d 1030, 1053 (2001). Further, the Federal Circuit stated in In re Robertson, that “to establish inherency, extrinsic evidence must make clear that the missing descriptive matter was necessarily present in the thing described in the reference, and would be so recognized by persons with ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a set of circumstances is not sufficient.” In re Robertson, 49 USPQ2d 1949 (Fed. Cir. 1999).

In this case, the Examiner has failed to provide extrinsic evidence that Hilti or JP '866 use a “dynamically crosslinking” technology. In contrast, the Applicants are providing evidence that Hilti and JP '866 represent conventional art technology that does not use “dynamically crosslinking”.

As has been observed, Hilti discusses a styrene/EPDM terpolymer mixture and JP '866 discusses styrene butadiene rubbers. However, these products of both the terpolymer mixture and the rubber completely and fundamentally differ from the product of the present invention by their structure.

In "dynamically crosslinking", while a mixture of a rubber component, thermoplastic resin and other components is kneaded at predetermined conditions, the rubber component is crosslinked with the mixture being kneaded, and the crosslinked rubber becomes hard and is susceptible to shear. As a result, the particles of the crosslinked rubber become fine and disperse very finely in the matrix.

In contrast, in the "crosslinking" typified by the conventional art of the terpolymer of Hilti and the rubber of JP '866, the composition is kneaded after mixing the rubber component, the thermoplastic resin and other components, and the rubber component is crosslinked. As a result, the crosslinking reaction only advances thermally with the rubber component contained in the mixture. Therefore the island phase formed from the rubber is not finely divided. That is, the rubber is dispersed unfavorably in the matrix.

In comparison, in the technology of the present invention the conductive agent does not enter the hard island phased formed from the rubber, but instead enters the soft, continuous sea phase. That is, the conductive agent is localized in the matrix phase formed from a small amount of resin. The present invention thus has an advantageous unexpected result in that the addition amount of the conductive agent is small and that high conductivity can be obtained.

As evidence of high conductivity obtained from a small amount of conductive agent, the Examiner is directed to Publication (1) and Publication (2) attached to this paper. Particularly, as

the ratio of the phase of the crosslinked rubber was increased, it becomes possible to greatly reduce the addition amount of the conductive agent (see Figure 2 in Publication (1)). As a result, “dynamically crosslinking” is clearly not inherent in Hilti or JP ‘866.

Hilti and JP ‘866 therefore each fail to anticipate the present invention. Also, each of the single references of Hilti and JP ‘866 fail to have a teaching or suggestion of “dynamically crosslinking”. A *prima facie* case of obviousness has thus not been made over Hilti or JP ‘866.

This rejection is overcome and withdrawal thereof is respectfully requested.

Information Disclosure Statements

The Examiner is thanked for considering the Information Disclosure Statements filed July 22, 2003, November 25, 2003 and September 12, 2005 and for making the initialed PTO-1449 or PTO/SB/08 forms of record in the application in the Office Action mailed January 27, 2006.

Foreign Priority

The Examiner has acknowledged foreign priority and indicated that a certified copy of the priority document has been received, most recently in the Office Action mailed January 27, 2006.

The Drawings

The Examiner is respectfully requested to indicate whether the drawing figures are acceptable in the next official action.

Conclusion

The Examiner's rejections have been overcome. No issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner, Ph.D. (Reg. No.42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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Enclosures:

1. 12th Polymer Material Forum Summary (November 10, 2003) and English Translation.
2. Transparency Used at the 12th Polymer Material Forum Summary and English Translation.